EAST COAST BASIN

The East Coast Basin of New Zealand’s North Island offers extraordinary exploration potential with both conventional sands and two oil shale packages. More than 300 oil and natural gas seeps in the region have been sourced to two shale packages that are rich in total organic carbon, up to 600 metres thick and intensely fractured.

While the oil and natural gas seeps indicate a very active petroleum system, the basin is very lightly explored. Only 50 exploration wells have been drilled to date, and of these only eight have penetrated the underlying shale formations. The region is structurally complex and thrust fault dominated, with thrust ridges and associated ponded basins. Extensive areas show high potential for organic-rich shales buried to oil generation depths.

### OIL SHALE COMPARISON

<table>
<thead>
<tr>
<th>Basin/Jurisdiction</th>
<th>Waipawa East Coast New Zealand</th>
<th>Whangai East Coast New Zealand</th>
<th>Bakken Willesden North Dakota &amp; Saskatchewan</th>
<th>Monterey Santa Barbara California</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartz Content (%)</td>
<td>40 – 80</td>
<td>40 – 80</td>
<td>40 – 60</td>
<td>10 – 70</td>
</tr>
<tr>
<td>Carbonate Content (%)</td>
<td>5 – 40</td>
<td>5 – 40</td>
<td>10 – 20</td>
<td>10 – 50</td>
</tr>
<tr>
<td>Clay Content (%)</td>
<td>Unknown</td>
<td>Unknown</td>
<td>5 – 20</td>
<td>5 – 20</td>
</tr>
<tr>
<td>Depth (m)</td>
<td>0 – 5,000</td>
<td>0 – 5,000</td>
<td>2,700 – 3,000</td>
<td>2,100 – 4,250</td>
</tr>
<tr>
<td>Thickness (m)</td>
<td>10 – 70</td>
<td>300 – 600</td>
<td>10 – 50</td>
<td>10 – 120</td>
</tr>
<tr>
<td>Porosity (%)</td>
<td>3 – 8</td>
<td>3 – 8</td>
<td>4 – 12</td>
<td>13 – 29</td>
</tr>
<tr>
<td>Permeability (microdarcies)</td>
<td>10 – 200</td>
<td>10 – 130</td>
<td>5 – 1,000</td>
<td>1,000 – 19,000</td>
</tr>
<tr>
<td>Kerogen Type</td>
<td>Type II</td>
<td>Type II</td>
<td>Type II</td>
<td>Type II</td>
</tr>
<tr>
<td>TOC (%)</td>
<td>3 – 12</td>
<td>0.2 – 1.7</td>
<td>1 – 21</td>
<td>2 – 4.5</td>
</tr>
<tr>
<td>Vit Reflectance (R)</td>
<td>0.3 – 0.4</td>
<td>0.4 – 1.4</td>
<td>0.65 – 1.1</td>
<td>1.5 – 4</td>
</tr>
<tr>
<td>Tmax (Celsius)</td>
<td>430 – 445</td>
<td>420 – 445</td>
<td>420 – 450</td>
<td>NA</td>
</tr>
<tr>
<td>Geologic Age</td>
<td>Late Paleocene</td>
<td>Late Cretaceous / Paleocene</td>
<td>Upper Devonian</td>
<td>Miocene</td>
</tr>
</tbody>
</table>
Exploration wells in 2013

NZEC holds a 100% interest in the Ranui and Castlepoint permits, which cover 903 km² and 2,230 km² onshore, respectively.

Two wells have been drilled on the Ranui permit, collecting core samples from the Whangai shale. Analysis of well cuttings suggests the presence of natural gas, condensate and oil over a vertical column more than 200 metres thick.

Two wells on the Castlepoint permit intersected both the Waipawa and Whangai shales.

NZEC completed 70km of 2D seismic in 2012 to pinpoint locations for exploration, and plans to drill one exploration well on each of the Castlepoint and Ranui permits in Q4-2013.
**Seismic survey underway**

The Wairoa permit and surrounding area is the most-explored region of the East Coast Basin. Data from 16 wells and more than 500 km of 2D seismic shows both conventional and unconventional opportunities.

NZEC holds an 80% interest in this 867 km² onshore permit, with the remaining 20% held by Westech Energy New Zealand.

Exploration wells drilled by Westech discovered natural gas, but did not make a commercial discovery. NZEC’s plans for 2013 include technical studies, new 2D seismic and interpretation of existing seismic to plan a drill program for 2014.

NZEC’s technical team has worked extensively on the property, previously providing consulting services to Westech for seismic acquisition and interpretation, wellsite geology and prospectivity evaluation, and permitting and land access agreements. Working with community members, local government, local iwi and service providers, NZEC’s team has established strong relationships with local communities.
The East Cape permit covers 4,320 km² at the northern end of the East Coast Basin. Only three modern wells have been drilled in the permit, in 1972, yet numerous oil and gas seeps have been sourced back to the Waipawa and Whangai shales. There are also conventional leads in sandstone horizons with potential structural traps.

The area is characterized by allochthonous thrust sheets emplaced from the N-NE in earliest Miocene. NZEC is focused on the Waipawa oil shales in sub-thrust settings, and has identified two areas of particular interest.

NZEC has applied for a 100% interest in the East Cape permit and expects its application to be approved in 2013, allowing for exploration to commence. NZEC has already initiated dialogue with local communities and iwi regarding its exploration plans for the region.

### Technical and management expertise

**John Proust, Chief Executive Officer**  
Founder and principal shareholder of numerous successful public and private companies focused in the resource sector. Expert in corporate financing and corporate governance.

**Chris Bush, New Zealand Country Manager**  
Chemical engineer and CFA with more than 30 years of oil and gas experience, most recently as New Zealand Country Manager/Director for Origin Energy.

**Bruce McIntyre, Executive Director**  
Professional geologist with over 32 years of oil and gas experience. Proven track record of advancing both projects and companies from grassroots exploration through to production.

**Ian Brown, Chief Operating Officer**  
Professional engineer and founder of Ian R Brown Associates Ltd, a geological engineering consulting company focused on New Zealand oil and gas exploration and development.

**Chris Ferguson, Chief Financial Officer**  
Chartered Accountant with more than 18 years of financial, accounting and operational experience in the New Zealand public and private sectors.

**Bill Leask, Principal Geologist**  
Professional geologist with over 30 years of experience, with 16 years in oil and gas ranging from well prognosis and planning through wellsite operations to post-drill evaluation.

**June Cahill, Manager Exploration**  
Senior geoscientist with several years of consultancy experience and particular expertise in spatial data analysis and project management.

**In-country Technical Team**  
A team of geologists, geophysicists and logistics experts oversee the technical review, exploration and development activities, permitting and community engagement at NZEC’s properties.